



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/532,834

02/16/2006

Jonathan Michael Blackburn

27353-513-US1

8870

35437

7590

11/24/2008

MINTZ LEVIN COHN FERRIS GLOVSKY & POPEO  
ONE FINANCIAL CENTER  
BOSTON, MA 02111

EXAMINER

TSAY, MARSHA M

ART UNIT

PAPER NUMBER

1656

MAIL DATE

DELIVERY MODE

11/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,834	<b>Applicant(s)</b> BLACKBURN ET AL.	
	<b>Examiner</b> Marsha M. Tsay	<b>Art Unit</b> 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 40-42 and 44-81 is/are pending in the application.
- 4a) Of the above claim(s) 45-70 and 72-77 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-42, 44, 71 and 78-81 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1656

This Office action is in response to Applicants' remarks received September 29, 2008.

Applicants' arguments have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous Office actions are hereby withdrawn.

Claims 1-39, 43 are canceled. Claims 45-70, 72-77 are withdrawn. Claims 40-42, 44, 71, 78-81 are currently under examination.

Priority: Applicants request for priority to UK 0224872.2, filed October 25, 2002, is acknowledged.

### **Objections and Rejections**

Claim 40 is objected to because of the following informalities:

In claim 40, line 4, there should be a "the" in front of "antibiotic binding". There is also a period missing at the end of claim 40.

Appropriate correction is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 79, 81 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

Art Unit: 1656

art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Claims 79 and 81 recite "label-free detection methods" and "conformational antibody" respectively. While there appears to be support for a labeled or unlabeled antibiotic, there does not appear to be support for "label-free detection methods" (which can comprise a broad range of "methods") or "conformational antibody" in the instant specification. Therefore, claims 79 and 81 contain new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 40-42, 44, 71, 78-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As written, claim 40 is drawn to a method of detecting a protein expression and folding comprising fusing said protein to a ble marker protein wherein the ble fusion protein must adopt the correct conformation to bind an antibiotic in order to demonstrate the correctly folded nature of the ble fusion protein. The instant claim has been amended; however, it is still believed to be incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. It is still unclear how fusing said protein to a ble marker protein wherein the ble fusion protein must adopt the correct conformation to bind an antibiotic will detect a protein expression and folding, i.e. how is protein expression detected, how is protein folding detected.

Art Unit: 1656

Claim 40 recites the limitations "the correct conformation" and "the correctly folded nature" in the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 71 recites the limitation "the step" in the claim. There is insufficient antecedent basis for this limitation in the claim and its parent claim.

Claim 78 recites an antibiotic derived surface. It is unclear how what is meant by "antibiotic derived surface" (i.e., how is the surface derived with antibiotic). Further clarification is requested.

Claim 79 recites "label-free detection methods." It is unclear if by "label-free detection methods", the claim is referring to a non-labeled antibiotic or to an actual method that uses "label-free detection". If actual method steps are needed, it is unclear what said method steps are. Further clarification is requested.

Claim 81 recites "conformational antibody". It is unclear what is meant by "conformational antibody" and how this is used to determine antibiotic binding of the ble fusion protein.

Claims 41-42, 44 are included in this rejection because they are dependent on claim 40 and fail to cure its defect.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1656

Claims 40-42, 44, 79 remain rejected under 35 U.S.C. 102(b) as being anticipated by Bennett et al. (1998 BioTechniques 24(30): 478-482; previously cited). The instant methods are indefinite for the reasons noted in the 112, 2<sup>nd</sup> paragraph, rejections above. Further, the instant claims have been interpreted as: a method of detecting a Sh ble fusion protein binding to an antibiotic (i.e., zeocin).

Bennett et al. teach a ble fusion protein comprising green fluorescent protein (GFP) and the Zeocin<sup>TM</sup>-resistance gene Sh ble that can be used for visual screening of transfected cells by fluorescence and the selection of stable cell lines using Zeocin (an antibiotic) (p. 478-479; claims 40-42, 44, 79). The Sh ble gene confers resistance against the antibiotic Zeocin by direct binding to the drug (p. 478). The correct conformation and/or folding of the Sh ble-GFP fusion protein would inherently occur since Bennet et al. teach said fusion protein binds to Zeocin and allows for visual screening of cells.

Since Bennett et al. also teach an expression product of Sh ble gene, and claim 44 recites said ble marker protein is the expression product of a Sh ble gene, the marker protein of Bennett et al. would also meet the limitations of claims 41 and 42.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 71, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (1998 BioTechniques 24(30): 478-482; previously cited) in view of Marcu et al. (2000

Art Unit: 1656

Journal of the NCI 92(3): 242-248). The teachings of Bennett et al. are outlined above. Bennett et al. do not teach an antibiotic immobilized on a surface.

Marcu et al. disclose that immobilized antibiotics on a surface can be used to determine if proteins will interact with said antibiotics and if said antibiotics will affect its activity (p. 242).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Bennett et al. immobilizing the zeocin on a surface, as suggested by the teachings of Marcu et al., for visualization of the Sh ble-GFP fusion protein and drug interaction (claims 71, 78). Since Bennet et al. teach the binding of a protein to a drug can be successfully visualized by Sh ble-GFP fusion protein and Zeocin in transfected cells, one of ordinary skill would recognize that this same visualization can be extended onto an immobilized antibiotic surface since Marcu et al. disclose that a drug-protein interaction can be observed using an immobilized antibiotic surface and a protein.

Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (1998 BioTechniques 24: 478-482; previously cited) in view of Calmels et al. (1993 Molecular Pharmacology 44: 1135-1141).

The instant claims have been interpreted as: a method of detecting a Sh ble fusion protein binding to an antibiotic.

The teachings of Bennett et al. are outlined above. Bennett et al. do not teach a labeled antibiotic.

Calmels et al. disclose a fluorescently labeled antibiotic and that the protein product of the Sh ble gene binds to an antibiotic (bleomycin) with 1:1 stoichiometry (p. 1135).

Art Unit: 1656

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Bennet et al. by substituting the fluorescently labeled antibiotic of Calmels et al. for the unlabeled antibiotic of Bennett et al. (claim 80). The motivation to do so is due to one of ordinary skill in the art's desire to generate a stronger visualization signal upon the protein binding to the antibiotic.

The previous art rejections have been withdrawn in view of Applicants' amendments. However, in view of Applicants' amendment to the claims and their interpretation in the instant Office action, the instant claims are still believed to be unpatentable over the prior art.

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



Art Unit: 1656

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marsha M. Tsay whose telephone number is (571)272-2938. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Maryam Monshipouri/

Primary Examiner, Art Unit 1656

November 19, 2008